

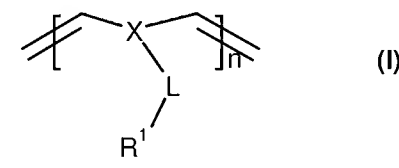
This listing of claims will replace all prior versions, and listings, of claims in the application:

**What is claimed is:**

1. (Withdrawn, Currently amended) A method of coating the internal surface of a device with a polymer, wherein the device is a microfabricated device or a reaction vessel with an internal diameter of less than about 2mm, the ~~process~~ method comprising the steps of:

- (i) introducing into the device a solution of one or more monomers in a suitable solvent;
- (ii) introducing a flow of an inert gas through the device; and
- (iii) initiating polymerisation of the monomer solution.

wherein polymerisation of the one or more monomers leads to a ROMP polymer of Formula (I):



wherein:

X is either a C<sub>4-6</sub> cycloalkyl or C<sub>4-6</sub> heterocyclyl moiety;

L is a C<sub>1</sub> to C<sub>20</sub> linker group comprising one or more alkyl, alkenyl, alkynyl, C<sub>4-10</sub> cycloalkyl, C<sub>4-10</sub> heterocyclyl, C<sub>4-10</sub> aryl, C<sub>4-10</sub> heteroaryl, ether, PEG, sulphide, amide, sulphamide or a combination thereof; any of which may be substituted with one or more groups R<sup>2</sup>

R<sup>1</sup> is hydrogen, C<sub>1-20</sub> alkyl, C<sub>2-20</sub> alkenyl, C<sub>2-20</sub> alkynyl, C<sub>4-12</sub> cycloalkyl, C<sub>4-12</sub> heterocyclyl, aryl, heteroaryl, C(O)R<sup>3</sup>, C<sub>1-20</sub> alkyl-C(O)R<sup>3</sup>, C<sub>2-20</sub> alkenyl-C(O)R<sup>3</sup>, C<sub>2-20</sub> alkynyl-C(O)R<sup>3</sup>, nitro, isocyanate, C<sub>1-10</sub> alkyl-C(O)-C(R<sup>4</sup>)<sub>2</sub>-C(O)-C<sub>1-10</sub> alkyl, aminoxy, nitrile, phosphorus chloride,

succinimide, sulphonyl chloride, halogen, tosylate, mesylate, triflate, nonaflate, silane, OR<sup>4</sup>, SR<sup>4</sup>, N(R<sup>4</sup>)<sub>2</sub>, N<sup>+</sup>(R<sup>4</sup>)<sub>3</sub>, quaternary phosphorous, C<sub>1-20</sub> alkyl-R<sup>5</sup>, C<sub>2-20</sub> alkenyl-R<sup>5</sup> or C<sub>2-20</sub> alkynyl-R<sup>5</sup> or a group comprising an enzyme or a catalyst.

R<sup>2</sup> is C(O)R<sup>3</sup>, C<sub>1-20</sub> alkyl-C(O)R<sup>3</sup>, C<sub>2-20</sub> alkenyl-C(O)R<sup>3</sup>, C<sub>2-20</sub> alkynyl-C(O)R<sup>3</sup>, nitro, isocyanate, C<sub>1-10</sub> alkyl-C(O)-C(R<sup>4</sup>)<sub>2</sub>-C(O)-C<sub>1-10</sub> alkyl, aminooxy, nitrile, phosphorus chloride, succinimide, sulphonyl chloride, halogen, tosylate, mesylate, triflate, nonaflate, silane, OR<sup>4</sup>, SR<sup>4</sup>, N(R<sup>4</sup>)<sub>2</sub>, N<sup>+</sup>(R<sup>4</sup>)<sub>3</sub>, quaternary phosphorous, C<sub>1-20</sub> alkyl-R<sup>5</sup>, C<sub>2-20</sub> alkenyl-R<sup>5</sup> or C<sub>2-20</sub> alkynyl-R<sup>5</sup>.

R<sup>3</sup> is H, OH, C<sub>1-20</sub> alkyl, OC<sub>1-20</sub> alkyl, N(R<sup>4</sup>)<sub>2</sub>, N<sup>+</sup>(R<sup>4</sup>)<sub>3</sub>;

each R<sup>4</sup> is independently H or C<sub>1-10</sub> alkyl;

R<sup>5</sup> is OR<sup>4</sup>, SR<sup>4</sup>, N(R<sup>4</sup>)<sub>2</sub>, N<sup>+</sup>(R<sup>4</sup>)<sub>3</sub>, C<sub>4-10</sub> cycloalkyl, C<sub>4-10</sub> heterocyclyl, aryl or heteroaryl.

2. (cancelled)

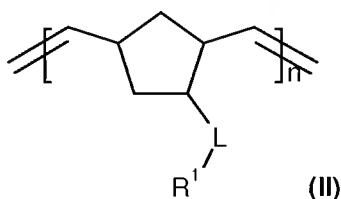
3. (Withdrawn)      A method as claimed in claim 1, wherein the inert gas is nitrogen or argon.

4. (Withdrawn)      A method as claimed in claim 1, wherein the device is a microfabricated device or a loop from 1 to 100 cm in length.

5. (Withdrawn)      A method as claimed in claim 1, wherein the device is adapted to carry out a solid-phase radiochemical process.

6-10. (Cancelled)

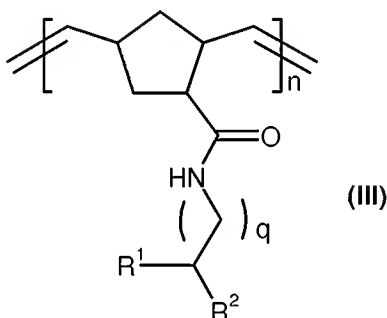
11. (Withdrawn, Currently amended) A ~~process~~ method as claimed in claim 1 wherein polymerisation of the one or more monomers leads to a ROMP polymer of Formula (II):



wherein:

$-L$  -,  $R^1$  and  $n$  are as defined above for Formula (I).

12. (Withdrawn, Currently amended) A ~~process~~ method as claimed in claim 1 wherein polymerisation of the one or more monomers leads to a ROMP polymer of Formula (III):



wherein:

$R^1$  and  $n$  are as defined above for Formula (I);

$R^2$  is an optional group as defined above for  $-L-$  of Formula (I); and,

$q = 1-4$ .

13. (Withdrawn, Currently amended) A ~~process~~ method as claimed in claim 12, wherein, in the ROMP polymer of Formula (III),  $R^1$  is trialkylammonium,  $R^2$  is absent,  $q = 3$  and  $n$  = number of polymer units.

14. (Withdrawn, Currently amended) A ~~process~~ method as claimed in claim 1, wherein each monomer is present in the starting solution in a concentration of from about 0.1 to 5M.

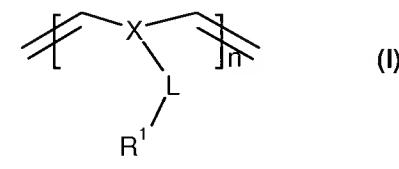
15. (Withdrawn, Currently amended) A ~~process~~ method as claimed in claim 1 wherein, in the monomer solution, the solvent is a polar aprotic solvent.

16. (Withdrawn, Currently amended) A ~~process~~ method as claimed in claim 1 wherein polymerisation is initiated by heating.

17. (Withdrawn, Currently amended) A ~~process~~ method as claimed in claim 1 wherein polymerisation occurs spontaneously.

18. (Withdrawn, Currently amended) A ~~process~~ method as claimed in claim 1, wherein the device is a microfabricated device and, the process of the invention comprises the initial step of creating a defined network of channels within the device.

19. (Currently amended) A device comprising a microfabricated device or a reaction vessel with an internal diameter of less than ~~about~~ 2mm, wherein the internal surface is coated with a polymer ~~substrate for a solid phase physical or chemical process~~ of Formula (I):



wherein:

X is either a C<sub>4-6</sub> cycloalkyl or C<sub>4-6</sub> heterocyclyl moiety;

L is a C<sub>1</sub> to C<sub>20</sub> linker group comprising one or more alkyl, alkenyl, alkynyl, C<sub>4-10</sub> cycloalkyl, C<sub>4-10</sub> heterocyclyl, C<sub>4-10</sub> aryl, C<sub>4-10</sub> heteroaryl, ether, PEG, sulphide, amide, sulphamide or a combination thereof; any of which may be substituted with one or more groups R<sup>2</sup>

R<sup>1</sup> is hydrogen, C<sub>1-20</sub> alkyl, C<sub>2-20</sub> alkenyl, C<sub>2-20</sub> alkynyl, C<sub>4-12</sub> cycloalkyl, C<sub>4-12</sub> heterocyclyl, aryl, heteroaryl, C(O)R<sup>3</sup>, C<sub>1-20</sub> alkyl-C(O)R<sup>3</sup>, C<sub>2-20</sub> alkenyl-C(O)R<sup>3</sup>, C<sub>2-20</sub> alkynyl-C(O)R<sup>3</sup>, nitro, isocyanate, C<sub>1-10</sub> alkyl-C(O)-C(R<sup>4</sup>)<sub>2</sub>-C(O)-C<sub>1-10</sub> alkyl, aminooxy, nitrile, phosphorus chloride, succinimide, sulphonyl chloride, halogen, tosylate, mesylate, triflate, nonaflate, silane, OR<sup>4</sup>, SR<sup>4</sup>, N(R<sup>4</sup>)<sub>2</sub>, N<sup>+</sup>(R<sup>4</sup>)<sub>3</sub>, quaternary phosphorous, C<sub>1-20</sub> alkyl-R<sup>5</sup>, C<sub>2-20</sub> alkenyl-R<sup>5</sup> or C<sub>2-20</sub> alkynyl-R<sup>5</sup> or a group comprising an enzyme or a catalyst.

R<sup>2</sup> is C(O)R<sup>3</sup>, C<sub>1-20</sub> alkyl-C(O)R<sup>3</sup>, C<sub>2-20</sub> alkenyl-C(O)R<sup>3</sup>, C<sub>2-20</sub> alkynyl-C(O)R<sup>3</sup>, nitro, isocyanate, C<sub>1-10</sub> alkyl-C(O)-C(R<sup>4</sup>)<sub>2</sub>-C(O)-C<sub>1-10</sub> alkyl, aminooxy, nitrile, phosphorus chloride, succinimide, sulphonyl chloride, halogen, tosylate, mesylate, triflate, nonaflate, silane, OR<sup>4</sup>, SR<sup>4</sup>, N(R<sup>4</sup>)<sub>2</sub>, N<sup>+</sup>(R<sup>4</sup>)<sub>3</sub>, quaternary phosphorous, C<sub>1-20</sub> alkyl-R<sup>5</sup>, C<sub>2-20</sub> alkenyl-R<sup>5</sup> or C<sub>2-20</sub> alkynyl-R<sup>5</sup>.

R<sup>3</sup> is H, OH, C<sub>1-20</sub> alkyl, OC<sub>1-20</sub> alkyl, N(R<sup>4</sup>)<sub>2</sub>, N<sup>+</sup>(R<sup>4</sup>)<sub>3</sub>;

each R<sup>4</sup> is independently H or C<sub>1-10</sub> alkyl;

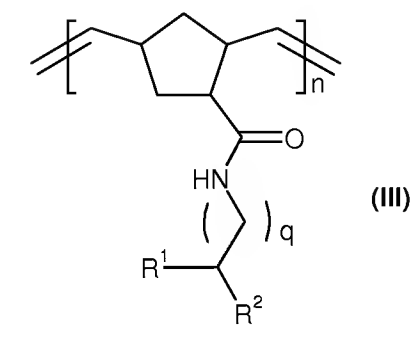
R<sup>5</sup> is OR<sup>4</sup>, SR<sup>4</sup>, N(R<sup>4</sup>)<sub>2</sub>, N<sup>+</sup>(R<sup>4</sup>)<sub>3</sub>, C<sub>4-10</sub> cycloalkyl, C<sub>4-10</sub> heterocyclyl, aryl or heteroaryl.

20. (Original) A device as claimed in claim 19 adapted for carrying out a solid phase radiochemical process.

21 - 22. (Cancelled)

23. (Previously presented) An automated synthesis system comprising two or more devices as claimed in claim 19 which are fluidly interconnected.

24. (Withdrawn, Currently amended) A method for recovering of  $^{18}\text{F}$ -fluoride ion from  $^{18}\text{O}$ -enriched water containing  $^{18}\text{F}$ -fluoride ion, the process comprising passing the  $^{18}\text{O}$ -enriched water containing  $^{18}\text{F}$ -fluoride ion through a device as claimed in claim 19 or a system comprising two or more devices as claimed in claim 19 which are fluidly interconnected, in which the polymer coating comprises a ROMP polymer of general formula (III):

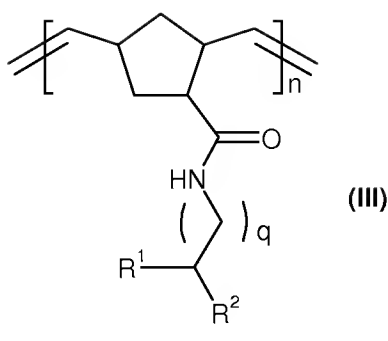


in which  $\text{R}^1$  is tri( $\text{C}_{1-6}$  alkyl)ammonium, with a non-nucleophilic counter-ion,  $\text{R}^2$  is absent and  $q$  is 3.

25. (Withdrawn) A method as claimed in claim 24 which is a step in the synthesis of an  $^{18}\text{F}$ -labelled radiotracer.

26. (Withdrawn, Currently amended) A method for the synthesis of an  $^{18}\text{F}$ -labelled radiotracer, the method comprising:

(i) recovering of  $^{18}\text{F}$ -fluoride ion from  $^{18}\text{O}$ -enriched water containing  $^{18}\text{F}$ -fluoride ion passing the  $^{18}\text{O}$ -enriched water containing  $^{18}\text{F}$ -fluoride ion through a device as claimed in claim 19 or a device comprising two or more devices as claimed in claim 19 which are fluidly interconnected, in which the polymer coating comprises a ROMP polymer of general formula (III):



in which  $R^1$  is tri( $C_{1-6}$  alkyl)ammonium, with a non-nucleophilic counter-ion,  $R^2$  is absent and  $q$  is 3; and

(ii) introducing into the device an unlabelled precursor compound of the  $^{18}\text{F}$ -labelled radiotracer such that  $^{18}\text{F}$  becomes incorporated into the precursor compound *via* nucleophilic substitution to form the  $^{18}\text{F}$ -labelled radiotracer.

27. (Withdrawn) A method as claimed in claim 26, wherein the  $^{18}\text{F}$ -labelled radiotracer is:

2- $^{18}\text{F}$ fluorodeoxyglucose (2- $^{18}\text{F}$ -FDG);

L-6- $^{18}\text{F}$ fluoro-DOPA;

3'-deoxy-3'-fluorothymidine (FLT);

2-(1,1-dicyanopropen-2-yl)-6-(2- $^{18}\text{F}$ fluoroethyl)-methylamino)-naphthalene ( $^{18}\text{F}$ FDDNP);

5 $^{18}\text{F}$ fluorouracil; 5 $^{18}\text{F}$ fluorocytosine; or

$^{18}\text{F}$ -1-amino-3-fluorocyclobutane-1-carboxylic acid ( $^{18}\text{F}$ -FACBC).